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Toutoungi

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(54) **PORTABLE WEATHER-RESISTANT UNIT FOR VIDEO PROJECTORS**

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(51) **Int. Cl.**
G03B 21/14 (2006.01)

(52) **U.S. Cl.**
USPC **353/119**; 348/794

(58) **Field of Classification Search**
USPC 353/119
See application file for complete search history.

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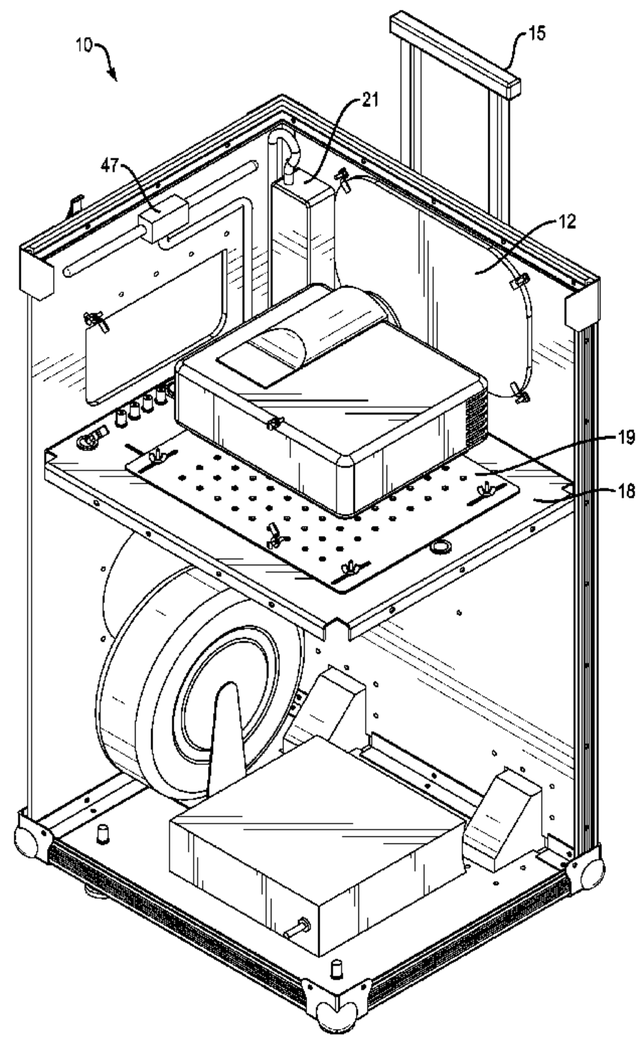
(57) **ABSTRACT**

A portable weather-resistant device is provided for use with a video projector that includes front and back projector windows with interchangeable clear and dark plates, leveling feet, and wheels. The device can be configured to house a weatherproof DVD player, speakers, a radio, ventilation fans, projector mount, projector plate, AC to DC converter, and microphone input.

4 Claims, 5 Drawing Sheets



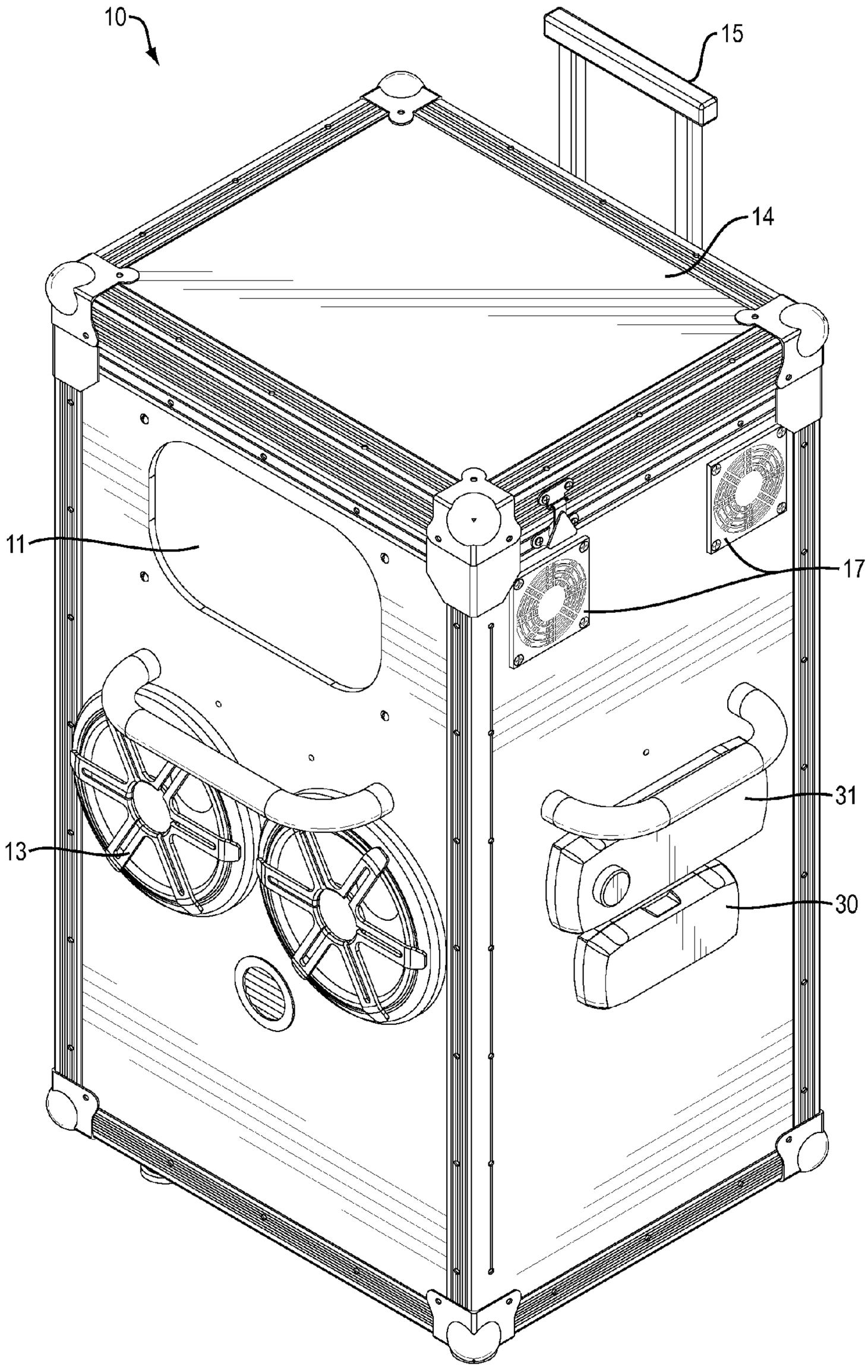


FIG. 1

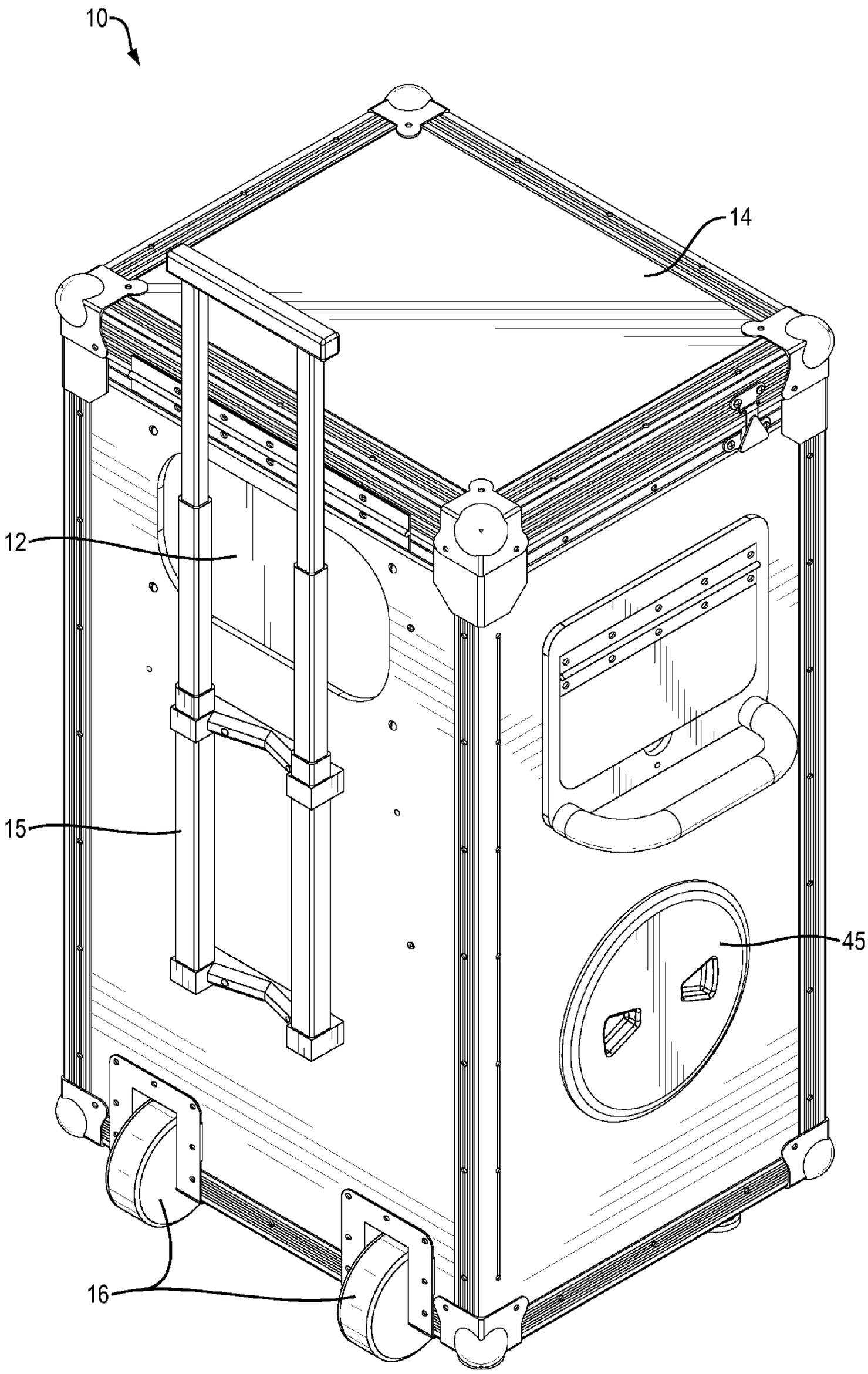


FIG. 2

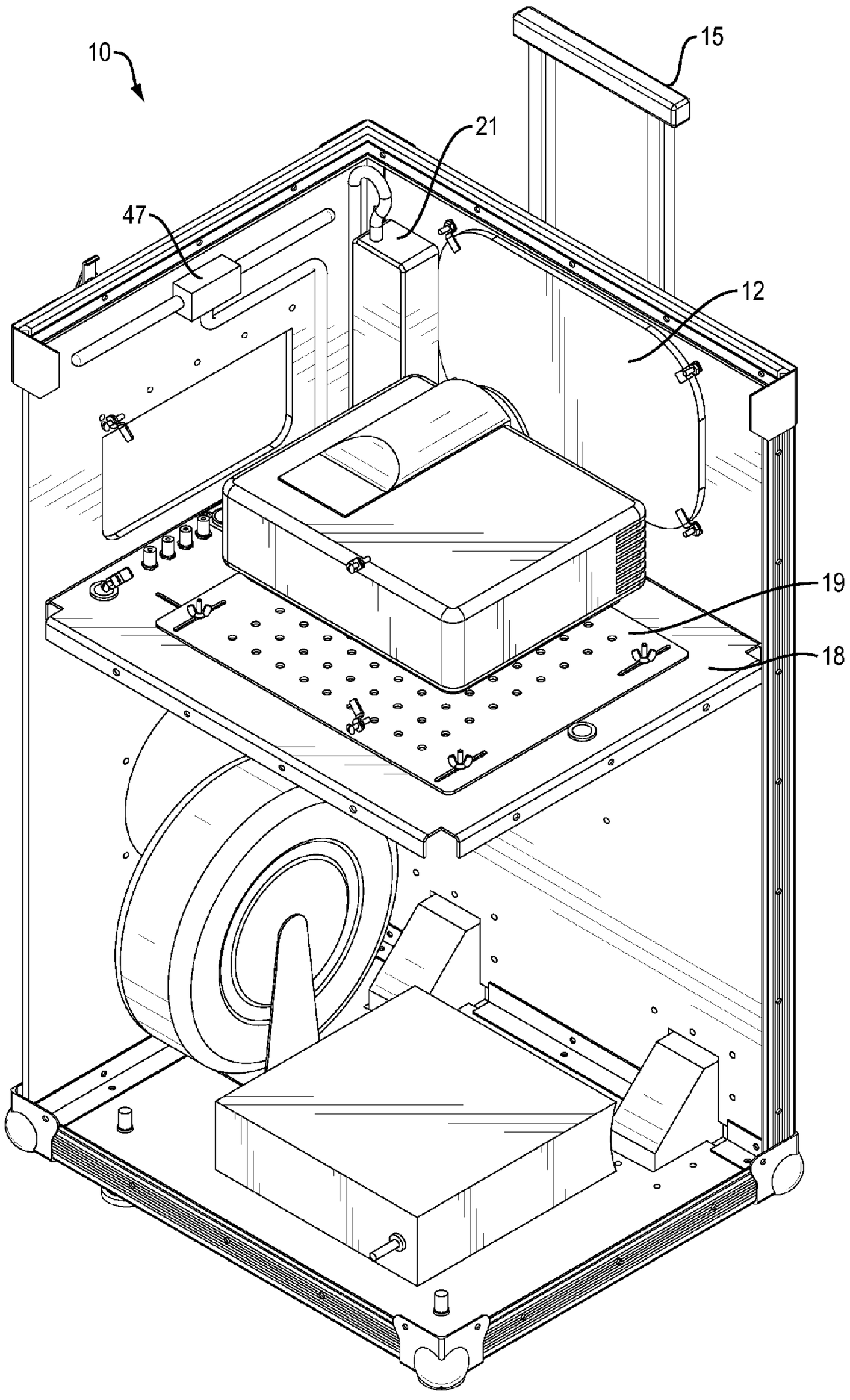


FIG. 3

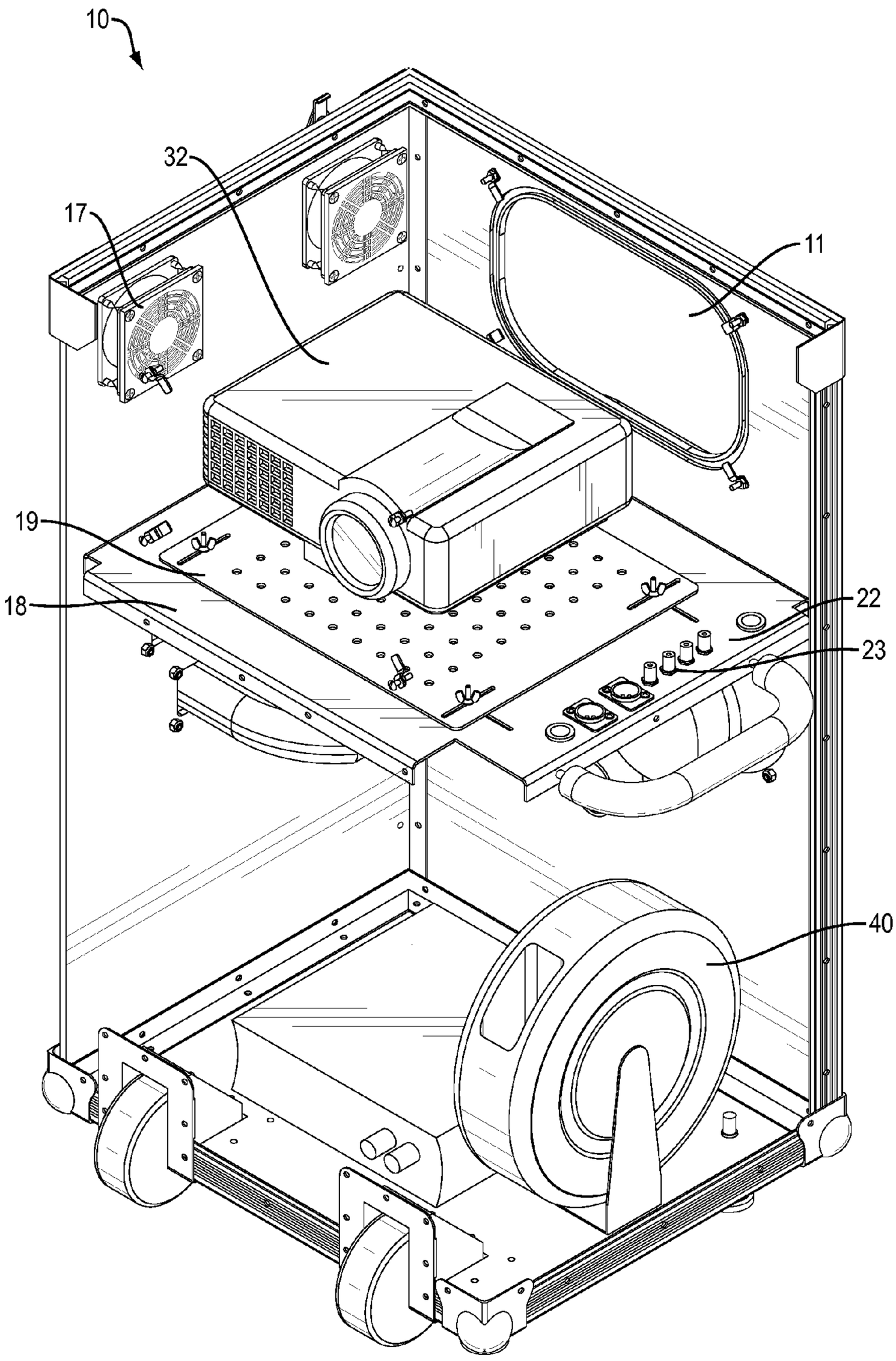


FIG. 4

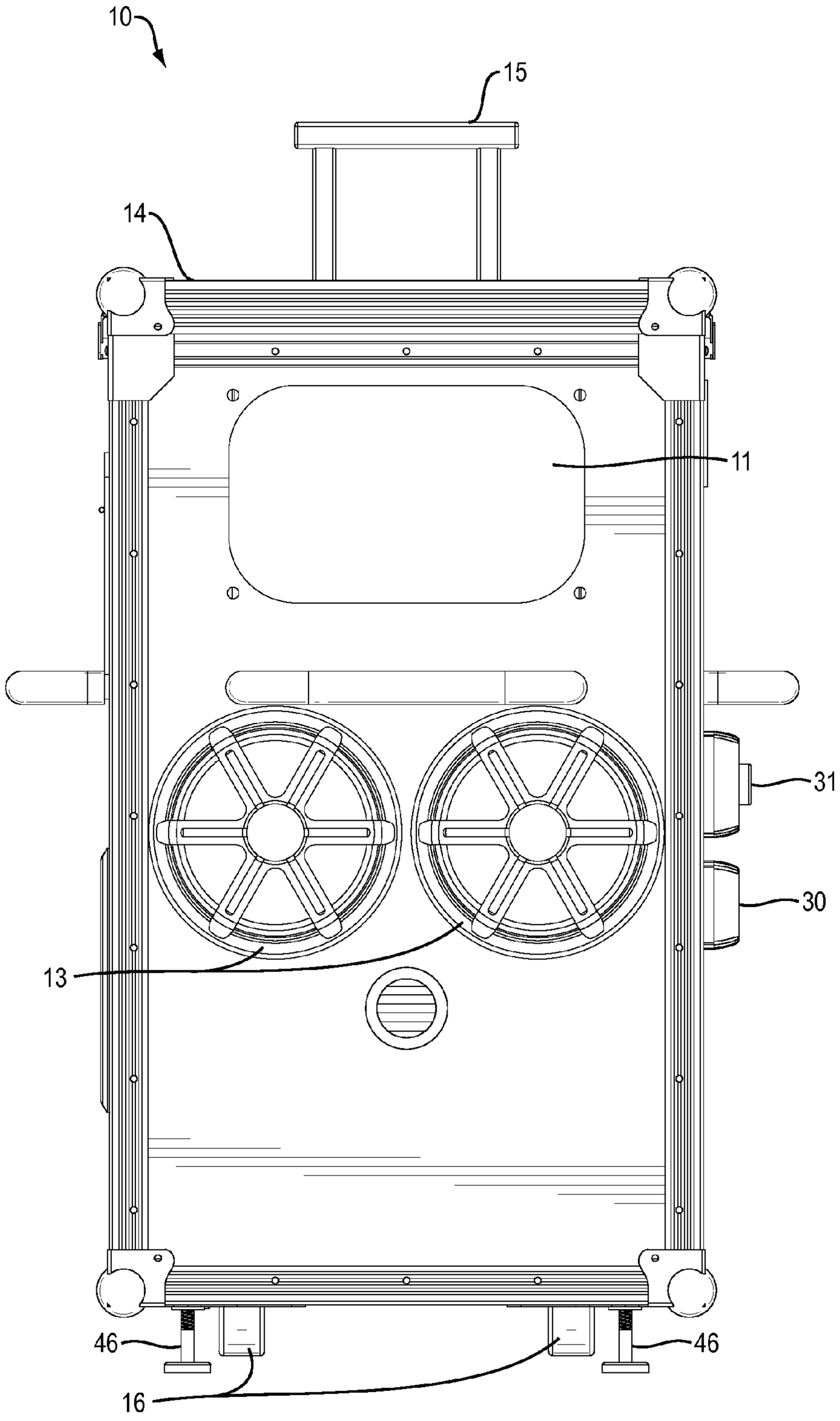


FIG. 5

PORTABLE WEATHER-RESISTANT UNIT FOR VIDEO PROJECTORS

CROSS-REFERENCE TO RELATED APPLICATIONS

None.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable.

FIELD OF THE INVENTION

The invention relates to accessories for audio/visual devices, in particular accessories for furthering portability and suitability for outdoor use of audio/visual devices.

BACKGROUND OF THE INVENTION

The use of audio/visual devices in outdoor environments for entertainment and educational or instructional purposes has been increasing. Projectors can be used with portable or temporary projection screens to allow video to be shown almost anywhere. There are also a number of options for including a sound system, microphone system, and power converter with projectors. However, these components have not been fitted into a single compact, portable, adjustable, weather-resistant casing. There is a need for a weather-resistant, portable device that can be used to conveniently house and transport video projectors along with other audio/visual devices.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a housing that can accommodate a projector and accessories for projectors while being portable and weather-resistant.

It is a further object of the invention that the housing include speakers in the front and have front and back projector windows with interchangeable clear and dark plates.

It is a further object of the invention that the housing include a retractable handle, wheels, and a leveling mechanism.

It is a further object of the invention that the housing include a power converter, a radio, a DVD player, a microphone input, ventilation fans and/or a projector mount.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** depicts a perspective view showing front and a side of an embodiment of a device of the present invention.

FIG. **2** depicts a perspective view showing back and a side of an embodiment of a device of the present invention.

FIG. **3** is a cut-away view of an embodiment of the present invention in which the top, front panel and a side panel are not shown.

FIG. **4** is a cut-away view of an embodiment of the present invention in which the top, rear panel and a side panel are not shown.

FIG. **5** shows the front of an embodiment of a device of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

A compact, portable accessory unit **10** for projectors is shown in FIGS. **1-2**. The unit **10** is weather-resistant so that it can be used in outdoor environments and the audio/visual equipment associated with the unit can be used as well. All sides of the unit **10** are riveted together with blind rivets for water protection.

The front of unit **10** includes speakers **13**. Preferably, the speakers **13** are weather resistant marine speakers. Unit **10** also includes a front projector window **11** and a rear projector window **12**. A projector can be placed in the unit **10** by removing or opening the top panel **14** and the projector can be oriented to project through either the front or rear projection window. This feature allows the speakers **13** to be oriented toward the viewing audience regardless of whether a front projector or rear projector is used. When a projector is to be located behind a viewing screen, the projector is oriented to project through the front projector window **11**. When the projector is to be used from the front of a viewing screen, the projector is oriented to project through the rear projector window **12** so that the speakers **13** face the audience. In a preferred embodiment, the plates for the windows are removable and interchangeable. One of the plates can be dark and one of the plates can be clear so that the interior of the unit **10** can be less visible through the window that is not being used for projection. Side windows (not shown) can also be included.

The portable unit **10** also includes an extendable handle **15** attached to the rear and wheels **16** on the bottom for ease of transport. The handle **15** is either positioned such that it does not interfere with the rear projection window **12** or collapsible so that it will not interfere with the rear projection window **12** when a projector is in use.

The bottom of the unit **10** may also include a leveling mechanism such as the feet **46** shown in FIG. **5**. The leveling mechanism allows the unit **10** to be set up on uneven terrain as can be encountered in outdoor environments.

To operate in the substantially enclosed, weather-resistant unit **10**, electronic devices require air circulation for cooling. Therefore, ventilating fans **17** are included. Preferably, two 12-volt DC fans are used. Most projectors will include a cooling fan to cool the light source. However, when a projector is placed within the weather-resistant unit with the top panel closed, additional ventilation is required for normal functioning.

Power is provided for the electronic devices through an AC to DC converter. Preferably, a 120 volt AC to 12 volt DC converter is used. Outlets are provided within the unit **10**. A retractable extension cord can also be included.

As shown in FIGS. **3** and **4**, the upper portion of the interior of unit **10** can include a shelf **18** with a projector plate **19**. The projector **32** shown in FIGS. **3** and **4** is oriented to project through rear window **12**. A projector mount, which allows the projector to be tilted as needed, can be included to attach the projector **32** to the projector plate **19**. Preferably, a power strip **21** is also included along with audio inputs **22** and line outputs **23** for connecting to any external speakers. In addition, an antenna **47** can be included.

Beneath the shelf **18**, the lower portion of the interior of unit **10** can house a power strip (not shown) and a retractable extension cord **40**. Other accessories (not shown) can be housed in this area including a DVD player, preferably a marine grade waterproof DVD player, a radio, a microphone input for a public address system, and/or a portable media player dock. An access hatch **30** (shown in FIG. **1**) or a port-hole **45** (shown in FIG. **2**) can also be included to provide easier access to these accessories.

A control panel **31** is provided on a side of unit **10** which allows a user to control various accessories, including a DVD player, the radio, speaker volume, and microphone parameters.

The invention claimed is:

1. A portable weather-resistant device comprising: a weather-resistant exterior including a top panel, a bottom, a front panel, a rear panel and side panels, wherein the bottom, side panels, front panel and rear panel are riveted together with blind rivets and leveling feet are attached to the bottom; wheels attached to the bottom; a retractable handle attached to the rear panel; a window in the front panel and a window in the rear panel; a ventilation fan in an upper portion of the device; audio speakers positioned in the front panel; an access hatch in a side panel; a power inverter; a projector plate and a projector mount situated such that a projector can be oriented to project through the window in the front panel or the window in the rear panel; a DVD player, an FM radio, and a music player within the device; a glass plate for the window in the front panel and a glass plate for the window in the rear panel wherein one of the glass plates is clear and one of the glass plates is opaque and each of the glass plates can fit in either the front window or the rear window; and a retractable power cord that fits within the device when coiled.

2. The device of claim **1** wherein the DVD player is a weather resistant marine DVD player.

3. The device of claim **1** wherein the power inverter is a 120 volt AC to 12 volt DC converter.

4. The device of claim **2** further including ports for side speakers and a microphone.

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